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Hemodynamic Status and Its Relationship with the Risk of Pressure Ulcers Development in Patients After Open Heart Surgery

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Abstract

Objective: *Despite using the most appropriate methods of prevention, the incidence of pressure ulcers is still considered as a major problem of health care in all health systems. A group of patients at high risk for this problem, there are patients who are undergoing open heart surgery. But few studies have been done about the risk of pressure ulcers in this group of patients. This study aimed to investigate the relationship between hemodynamic statuses with the risk of pressure ulcers development in patients after heart surgery is done.*

Materials and methods: *This cross-sectional study conducted in cardiac intensive care unit of Bu Ali Sina hospital in Qazvin. Eighty two patients who were undergoing cardiac surgery were selected by convenience sampling method. The risk of pressure ulcers on three times, before surgery, after surgery (the patient's consciousness) and at discharge was evaluated by using the Braden scale and international staging pressure ulcers (stage 6). As well as demographic specifications, hemodynamic status, including systolic blood pressure, diastolic blood pressure, mean arterial blood pressure, heart rate, central venous pressure and the patient's medications on a daily basis were recorded by the researcher. Data analysis was performed using SPSS 16 software.*

Results: *Of the 82 patients, 36 were women (43.9%) and 46 males (56.1%). The mean ages of patients were 10.52 ± 60.93 and the mean of intensive care unit stay was 2.87 ± 0.96. The risk of pressure ulcers with an average diastolic blood pressure on the first day (p = 0.04), the mean central venous blood pressure in the second day (p = 0.01), mean heart rate on the second day (p = 0.04), age (p = 0.000), duration of hospitalization in a special section (p = 0.002), presence of diabetes (p = 0.04), cardiac surgery (p = 0.01), smoking (p = 0.000) and the pump during surgery (p = 0.03) had a significant relationship.*

Conclusion: *according to finding of present study, patients who are undergoing cardiac surgery, are at high risk for pressure ulcers development and factors such as diastolic blood pressure, central venous pressure, increased heart rate, increased age, duration of hospitalization, presence of diabetes, previous surgery, smoking and working the pump during surgery could be increased this risk.*

Keywords: *pressure ulcer, hemodynamic, cardiac surgery, risk, manifestation*

I. Introduction

Pressure ulcer, pressure sore or decubitus ulcer (1) is localized damage to the skin or underlying tissue usually over a bony prominence (2). Local with soft tissue less (3) with at least 5,000 years of history (4), Health care remains a major challenge with the prevalence of almost 25% in the United States of America and between 10 to 50 percent in Iran (5). Many research has done in the field of identifying factors pressure ulcers in nursing profession and nurses always in providing nursing services has encountered to patients that in the initial review are susceptible to pressure ulcers (6). Many factors affect the development and progression of pressure ulcers. (7) and a large number of risk factors have been identified for development of pressure ulcers (8), because of pressure ulcer is a multifactorial problem (9). That some of these environmental factors and some were related to one's own (7) and as well as primary risk factors. (10). Including external factors pressure and friction (11) and internal factors hematologic criteria. (12), malnourishment. (11), hemodynamic changes.